

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re Application of: Sen, et al.

Serial No.: 10/757,021

Confirmation No.: 3282

Filed: January 14, 2004

For: Process Kit Design for
Deposition Chamber

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Group Art Unit: 1763

Examiner: Jeffrie R. Lund


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July 13, 2007

Date


Steven H. VerSteeg

Dear Sir or Madam:

REPLY BRIEF

Appellants submit this Reply Brief to the Board of Patent Appeals and Interferences on appeal from the decision of the Examiner of Group Art Unit 1763 dated August 9, 2006, finally rejecting claims 1-5 and 8-22. One copy of this brief is submitted for use by the Board.

Remarks

As an initial matter, Appellants acknowledge the Examiner's correction of the grounds of rejection. As the grounds for rejection has not substantively changed, Appellants believe that no further comment is necessary.

The Examiner states that *Sajoto et al.* teaches "it is desirable to cover exposed portions of the chamber to facilitate cleaning of the chamber, and that the chamber liner 28 generally covers upper chamber surfaces adjacent the substrate support member (not the exhaust conduit)" (see Examiner's Answer, pages 8-9). The Examiner further states that the "chamber liner 28 does not shield the entire exhaust conduit and that there are exposed surfaces of the gas manifold 46 and support ring 78 that could be covered" (see Examiner's Answer page 9). The Examiner reasons that one of ordinary skill in the art would look to *Frijlink* to cover the exposed area of *Sajoto et al.* Appellants respectfully reply to the Examiner's Answer.

Appellants respectfully submit that the Examiner errs in finding that *Frijlink* teaches covering the parts that need to be covered. The Examiner states that without the process kit of *Frijlink* the exhaust conduit of *Frijlink* would be defined by the cover plate 20, outer ring 10, and base plate 30, all of which would be exposed to and coated directly by the bi-products of the process (see Examiner's Answer page 9). Thus, following the Examiner's reasoning, the process kit of *Frijlink* effectively covers the cover plate 20, the outer ring 10, and the base plate 30 and prevents any deposition from occurring thereon. However, Appellants respectfully submit that the process kit of *Frijlink* does not cover the cover plate 20, the outer ring 10, and the base plate 30 (see Figures 1-4). There are surfaces of the cover plate 20 and the base plate 30 that are not covered by the process kit at all (see Figures 1-4). Additionally, a gap exists between the process kit and the cover plate 20 such that process gas may seep through the gap and contact the outer ring 10 (see Figures 1-4). The Examiner has reasoned that it is obvious to cover a few tiny exposed portions of *Sajoto et al.*, but *Frijlink*, the reference that the Examiner uses to teach or suggest covering all exposed areas, does not itself cover all exposed areas. It is respectfully submitted that it is only through hindsight that one of ordinary skill would cover all exposed areas in *Sajoto et al.* with a

process kit of *Frijlink* that does not itself cover all exposed areas. Appellants respectfully submit that combining *Sajoto et al.* and *Frijlink* does not teach, show, suggest, or otherwise render obvious the claimed invention.

The Examiner also states that the liner 28 of *Sajoto et al.* is "very complicated and expensive" and that by making the liner 28 from multiple pieces, "the cost is reduced" and further that "the addition of the top arm 15 and the pumping liner 18 of *Frijlink* does not significantly increase the complexity of construction or cost" (see Examiner's Answer page 11). Appellants respectfully reply to the Examiner's Answer.

The Examiner has provided no evidentiary support to prove that the liner of *Sajoto et al.* is "very complex and expensive" or that if the liner 28 were made in multiple pieces "the cost would be reduced." It is respectfully submitted that the Examiner, without evidentiary support, is speculating that "the addition of the top arm 15 and the pumping liner 18 of *Frijlink* does not significantly increase the complexity of construction or cost". Therefore, Appellants respectfully submit that it is only through hindsight that one of ordinary skill in the art would modify *Sajoto et al.* with *Frijlink*.

The Examiner further states that pumping channels "formed in a U-shaped passage are well known in the art to have an asymmetric gas flow problem" and that the "problem has been solved by adding a pumping liner which restricts the flow of gas from the processing region into the pumping channel in the U-shaped passage" (see Examiner's Answer page 12). Appellants respectfully reply to the Examiner's Answer.

Again, the Examiner has provided no evidentiary support to show that U-shaped passages are well known to have an asymmetric gas flow problem. Additionally, it is respectfully submitted that it is speculation that any problem not yet proven is solved by adding a pumping liner. Neither *Frijlink* nor *Sajoto et al.* indicate any problem with the U-shaped passage or any solution to any perceived problem.

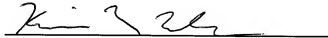
The Examiner additionally states that "the process kit of *Frijlink* would only add one additional part of the pumping channel, specifically, an upper arm or annular top part 15" (see Examiner's Answer page 13). It appears that the Examiner is adding only item 15 of *Frijlink* to *Sajoto et al.* and not an entire process kit as previously stated by the Examiner. Appellants respectfully submit that one of ordinary skill in the art would not pick and chose part 15 from *Frijlink* and place it into *Sajoto et al.* without

impermissible hindsight. There is no teaching, suggestion, or motivation to pick and chose part 15 from *Frijlink* and place it into *Sajoto et al.* Hence, combining *Sajoto et al.* and *Frijlink* does not teach, show, suggest, or otherwise render obvious the claimed invention.

Conclusion

The Examiner errs in finding that *Sajoto et al.* in view of *Frijlink* render claims 1-5, 8-10, and 16-18 obvious. The Examiner also errs in finding that *Sajoto et al.* in view of *Frijlink* and *Sillmon et al.* renders claims 11, 12, 20, and 21 obvious. The Examiner further errs in finding that *Sajoto et al.* in view of *Frijlink* and *Fairbairn et al.* renders claims 13-15 and 19 obvious. The Examiner additionally errs in finding that *Sajoto et al.* in view of *Frijlink*, *Fairbairn et al.*, and *Sillmon et al.* renders claim 22 obvious. It is respectfully requested that the Board reverse the findings of the Examiner.

Respectfully submitted,



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